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<b>TRANSMITTAL FORM</b>  (to be used for all correspondence after initial filing)	Application Number	09/889,085-Conf. #6842
	Filing Date	January 9, 2002
	First Named Inventor	Patricia L. Conway
	Art Unit	1651
	Examiner Name	V. Afremova
Total Number of Pages in This Submission	Attorney Docket Number	28053/38258

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Firm Name	MARSHALL, GERSTEIN & BORUN		
Signature			
Printed name	Jeffrey S. Sharp		
Date	June 30, 2006	Reg. No.	31,879

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Dated: June 30, 2006

Signature: \_\_\_\_\_

(Jeffrey S. Sharp)

Docket No.: 28053/38258  
(PATENT)

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent Application of:  
Patricia L. Conway et al.

Application No.: 09/889,085

Confirmation No.: 6842

Filed: January 9, 2002

Art Unit: 1651

For: IMPROVED MICROBIAL PREPARATIONS

Examiner: V. Afremova

**REPLY BRIEF ON APPEAL**

MS Appeal Brief - Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

Pursuant to the receipt of an Examiner's Answer mailed May 2, 2006 in the above-application, the Appellants respectfully submit the following Reply Brief in accordance with 37 CFR § 41.41. This Reply Brief is timely filed on June 30, 2006.

If any fees are deemed necessary, the Commissioner is authorized to charge such fees to Deposit Account No. 13-2855.

## **I. STATUS OF CLAIMS**

### **A. Total Number of Claims in Application**

There are 79 claims pending in application. These claims are 41 and 76-153, attached hereto as Appendix A.

### **B. Current Status of Claims**

1. Claims canceled: 1-19, 76
2. Claims withdrawn from consideration but not canceled: 20-75
3. Claims pending: 41, 76-153
4. Claims allowed: none
5. Claims rejected: 41, 76-153

### **C. Claims On Appeal**

The claims on appeal are claims 41, 76-153

## **II. STATUS OF AMENDMENTS**

Applicant filed an Amendment After Final Rejection on August 1, 2005. The Examiner responded to the Amendment After Final Rejection in an Advisory Action mailed September 8, 2005. In the Advisory Action, the Examiner indicated that Applicants' proposed amendments canceling claims 41 and 76 would not be entered.

Accordingly, the claims enclosed herein as Appendix A do not incorporate the amendments canceling claims 41 and 76 as indicated in the paper filed. However, the claims in Appendix A do incorporate the amendments indicated in the paper filed by Applicant on February 22, 2005.

Nevertheless, Appellants wish to withdraw from consideration on appeal claims 41 and 76 to simplify the issues presented on appeal.

### **III. GROUNDS OF OBJECTION TO BE REVIEWED ON APPEAL**

The issues presented on appeal are as follows:

A. Whether claims 77, 79, 81, 88, 90-105, 109-120, 124-135 and 139-150 are unpatentable under 35 U.S.C. § 102(b) as being anticipated by Masuda, U.S. Patent 5,143,845.

B. Whether claims 77-153 are unpatentable under 35 U.S.C. § 102(b) as being anticipated by Brown et al., U.S. Patent 6,060,050 (“Brown ‘050”) in light of evidence by McNaught et al., U.S. Patent 5,714,600.

C. Whether claims 77-153 are unpatentable under 35 U.S.C. § 103(a) as being unpatentable over Masuda taken with Brown et al. Food Australia 50(12) (Dec. 1998) (“Brown, Food Australia”) and McNaught et al.

D. Whether claims 77-153 are unpatentable under the judicially created doctrine of obviousness-type double patenting over claims 1-12 of Brown et al., U.S. Patent 6,221,350 (“Brown ‘350”).

#### IV. ARGUMENT (REPLY)

Appellants' invention relates to the discovery that harvested microbes which have been previously cultured in or grown on resistant starch and then subsequently incorporated into a product have improved viability and survival/recovery rates (compared with the same microbes cultured in or grown on a medium not containing resistant starch). Thus, for example, *Bifidobacteria* previously grown on media which contained resistant starch have a superior survival/recovery rate compared to the same strain of *Bifidobacteria* previously grown on media which did not contain resistant starch. The process steps of the invention impart distinctive structural characteristics to the final microbes that manifest themselves in an improved survival/recovery rate and are clearly evidenced by the examples presented in the specification.

The rejections of the Final Office Action should each be reversed because they are based on incorrect premises. Thus, (A) the Section 102 rejection over Masuda is premised on the incorrect proposition that the harvested microbes of the invention are identical to prior art microbes which were not harvested from resistant starch. In the Examiner's Answer it was suggested that the claims lack novelty because they are not a new microbial strain! The error of this rejection is discussed further below.

Another of the rejections, ((B) the Section 102 rejection over Brown '050 in view of McNaught) is premised on the misapprehension that fecal microbes growing on resistant starch in the gut were harvested. While "enumeration" requires removal of a small aliquot of microbes with their environment, such "incorporation" of the microbes onto a plate for counting is not "harvesting." Responding to the Examiner, Appellants do not argue that growing fecal bacteria in the gut as part of a probiotic composition had a "purpose" which distinguishes such growth from the invention. Instead, Appellants argue that the probiotic purpose of Brown '050 makes it clear that no bacteria were cultured and harvested by that reference in accordance with the appealed claims.

Further, (C) the Section 103 rejection over the combination of Masuda with Brown '050, Brown, Food Australia and McNaught; and (D) the obviousness-type double patenting rejection over Brown '350) are premised on the related misapprehensions that

microbes which were not grown on or harvested from resistant starch but which are later co-packaged with resistant starch to produce a probiotic composition constitute or suggest the invention. Such is not the case! While resistant starch ingested as a carrier with microbes might physically protect those microbes in the gut such physical protection does not teach that microbes cultured on resistant starch and which then have that resistant starch removed would somehow later be protected.

In addition to the points made above, the Examiner's Answer continues to make two significant errors with respect to these underlying art-based rejections.

A. The Examiner's Presumption that "[t]he final bacteria are the same as [the] starting bacteria" is Erroneous and the Rejections Resulting from that Presumption Should be Reversed.

The Examiner's presumption at page 11, lines 20-21 of the Answer that "[t]he final bacteria are the same as [the] starting bacteria" underlies all the art-based rejections but is erroneous. The final bacteria are genetically the same as the starting bacteria but are not phenotypically the same. In this sense, the claimed microbial preparations are both novel and unobvious over the bacteria disclosed in the art.

Comparable to this situation is that of a conditioned mountaineer capable of scaling the earth's highest peaks in a rarified atmosphere. That mountaineer is the same individual genetically as his or her unconditioned previous self but when conditioned exhibits different characteristics as exhibited by his or her enhanced physical abilities. Just as a heat treated alloy is elementally the same as its precursor; the alloy is not the same as its untreated precursor. While it might be preferred to claim and distinguish such a heat treated alloy by reference to physical attributes such as its crystalline structure it is also acceptable to claim such a composition of matter by the manner in which it was produced in combination with its properties when so produced such as strength or hardness. So too it is acceptable to claim the current microbial preparations and products by virtue of how they are produced and their resulting properties.

Moreover, Appellants are not required to establish that any biochemical changes "would be permanent" as required at page 12, line 3 of the Answer. The claims all

require the element of having “an increased survival/recovery rate” and any microbial preparation not so characterized would not be covered by the claims. Similarly, Appellants are not required to “propose a novel microbial strain” as suggested by the Examiner at page 12, line 2 of the Answer. The apparent requirement that Appellants claim “a novel microbial strain” represents a false choice and as a result the outstanding rejections should be reversed.

**B.     The Evidence in the Specification Establishes that the Microbes Harvested from Resistant Starch Containing Cultures Have Improved Survival and Recovery Compared to the Same Organisms Harvested from Media Without Resistant Starch.**

The assertion, raised at page 12, line 15 through page 13, line 4 of the Answer, that the showing of improved survival and recovery by the claimed microbial preparations “is rather uncertain” is without merit. Appellants’ specification establishes that microbes harvested from resistant starch containing cultures have improved survival and recovery compared to the same organisms harvested from media without resistant starch. The fact that the claimed microbial strains which outlast those of the prior art eventually die themselves (see Figs 4-9) does not mean that those strains do not have “improved survival and recovery.” Similarly, the fact that the claimed strains don’t out-survive the prior art until after periods as short as 10 hours (Fig. 3) or as long as 60 hours (Fig. 1) does not mean that the claimed compositions don’t ultimately have improved survival and recovery characteristics and the Examiner has not asserted that they do not. Accordingly, the Examiner has failed to establish that the novel properties of the claimed microbial preparations fail to exist much less that such properties were disclosed by or expected in light of the prior art.

For these reasons, the rejections should be reversed and each of claims 77-153 should be allowed.

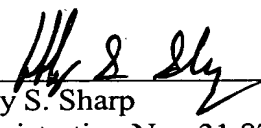
**V. CLAIMS**

A copy of the claims involved in the present appeal is attached hereto as Appendix A.

Dated: June 30, 2006

Respectfully submitted,

By

  
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**APPENDIX A**

**Claims Involved in the Appeal of Application Serial No. 09/889,085**

**Listing of the Claims:**

- 1.-19. (Cancelled)
20. (Withdrawn) A process of preparing a microbial preparation having an increased survival/recovery rate in a product, the process comprising growing or culturing microbes in a media based on or containing resistant starch in a manner such that when subsequently incorporated in a product the survival/recovery rate of the harvested microbes is increased as compared with the same microbes grown or cultured in a media without resistant starch, and harvesting the cultured microbes having an increased survival/recovery rate.
21. (Withdrawn) The process according to claim 20 wherein the product is selected from the group consisting of a food, feed, nutraceutical, pharmaceutical, biocontrol, and bioremediation product.
22. (Withdrawn) The process according to claim 20 wherein the resistant starch is type RS1, RS2, RS3 or RS4.
23. (Withdrawn) The process according to claim 22 wherein the resistant starch is derived from starch selected from the group consisting of maize, rice, barley, wheat, legumes, potatoes, and bananas.
24. (Withdrawn) The process according to claim 23 wherein the resistant starch is derived from a starch having an amylose content of at least 40% (w/w).
25. (Withdrawn) The process according to claim 24 wherein the resistant starch is derived from maize starch.
26. (Withdrawn) The process according to claim 25 wherein the maize starch having an amylose content of at least 70% (w/w).

27. (Withdrawn) The process according to claim 25 wherein the maize starch having an amylose content of at least 80% (w/w).

28. (Withdrawn) The process according to claim 25 wherein the maize starch having an amylose content of at least 90% (w/w).

29. (Withdrawn) The process according to claim 23 wherein the starch is chemically, physically, and/or enzymically treated or modified.

30. (Withdrawn) The process according to claim 29 wherein the chemical modification is selected from the group consisting of oxidation, cross-bonding, etherification, esterification, acidification, dextrinisation, and mixtures thereof.

31. (Withdrawn) The process according to claim 29 wherein the physical treatment is heat-moisture treatment to enhance or increase the resistant starch content of the starch.

32. (Withdrawn) The process according to claim 29 wherein the treatment is by solvent extraction to remove fats and/or minerals from the starch.

33. (Withdrawn) The process according to claim 20 wherein the resistant starch is used in the media at a concentration of 0.01 to 10% (w/w).

34. (Withdrawn) The process according to claim 33 wherein the resistant starch is used in the media at 0.1 to 5% (w/w).

35. (Withdrawn) The process according to claim 33 wherein the resistant starch is used in the media at 1% (w/w).

36. (Withdrawn) The process according to claim 20 wherein in use the microbes are unaffected by stresses including aeration, sheer, freeze drying, freezing, drying including high, medium and low water activity, elevated temperatures, low temperatures, pressure and

pressure fluctuations, low pH, high pH, bile acids, moisture, high osmolarity, low osmolarity, high salt, or combinations thereof.

37. (Withdrawn) The process according to claim 20 wherein the microbial preparation is a probiotic, a starter culture, a biocontrol or bioremediation product.

38. (Withdrawn) The process according to claim 37 wherein the microbes are probiotic microorganisms from the genera selected from the group of consisting of Saccharomyces, Bifidobacterium, Bacteroides, Clostridium, Fusobacterium, Propionibacterium, Streptococcus, Enterococcus, Lactococcus, Staphylococcus, Peptostreptococcus, and Lactobacillus.

39. (Withdrawn) The process according to claim 37 wherein the microbes are starter cultures selected from the group consisting of lactic acid bacteria lactic acid bacteria including lactobacillus, lactococcus and streptococcus, leuconostoc, and yeasts.

40. (Withdrawn) The process according to claim 37 wherein the microbes are suitable for use in biocontrol or bioremediation being selected from the group consisting of bifidobacteria, acidophilus, fungi, Bacillus species, pseudomonads and Alcaligenes.

41. (Previously Presented) A microbial preparation having an increased survival/recovery rate in a product prepared by the process comprising growing or culturing microbes in a media based on or containing resistant starch in a manner such that when subsequently incorporated in a product the survival/recovery rate of the harvested microbes is increased as compared with the same microbes grown or cultured in a media without resistant starch, and harvesting the cultured microbes having an increased survival/recovery rate.

42-62. (Cancelled)

63. (Withdrawn) Use of resistant starch in a microbial culture media to produce microbes which when used subsequently in a product after being harvested from the media,

have an increased survival/recovery rate as compared with the same microbes grown or cultured in a media without resistant starch.

64. (Withdrawn) The use according to claim 63 wherein the product is selected from the group consisting of a food, feed, nutraceutical, pharmaceutical, biocontrol, and bioremediation product.

65. (Withdrawn) The use according to claim 64 wherein the resistant starch is type RS1, RS2, RS3 or RS4.

66. (Withdrawn) The use according to claim 65 wherein the resistant starch is derived from starch selected from the group consisting of maize, rice, barley, wheat, legumes, potatoes, and bananas.

67. (Withdrawn) The use according to claim 66 wherein the resistant starch is derived from a starch having an amylose content of at least 40% (w/w).

68. (Withdrawn) The use according to claim 67 wherein the resistant starch is derived from maize starch.

69. (Withdrawn) The use according to claim 68 wherein the maize starch having an amylose content of at least 70% (w/w).

70. (Withdrawn) The use according to claim 68 wherein the maize starch having an amylose content of at least 80% (w/w).

71. (Withdrawn) The use according to claim 68 wherein the maize starch having an amylose content of at least 90% (w/w).

72. (Withdrawn) The use according to claim 66 wherein the starch is chemically, physically, and/or enzymically treated or modified.

73. (Withdrawn) The use according to claim 72 wherein the chemical modification is selected from the group consisting of oxidation, cross-bonding, etherification, esterification, acidification, dextrinisation, and mixtures thereof.

74. (Withdrawn) The use according to claim 72 wherein the physical treatment is heat-moisture treatment to enhance or increase the resistant starch content of the starch.

75. (Withdrawn) The use according to claim 72 wherein the treatment is by solvent extraction to remove fats and/or minerals from the starch.

76. (Previously Presented) A product containing microbes having an increased survival/recovery rate, the product including a microbial preparation according to claim 41.

77. (Previously Presented) A microbial preparation comprising harvested microbes which have been grown or cultured in a media based on or containing resistant starch in a manner such that when subsequently incorporated in a product, the survival/recovery rate of the harvested microbes is increased as compared with the same microbes grown or cultured in a media without resistant starch, the product being selected from the group consisting of a food, feed, nutraceutical, pharmaceutical, biocontrol, and bioremediation product, wherein the resistant starch is type RS1, RS3, or RS4.

78. (Previously Presented) The microbial preparation according to claim 77 further comprising resistant starch.

79. (Previously Presented) A microbial preparation comprising harvested microbes which have been grown or cultured in a media based on or containing resistant starch in a manner such that when subsequently incorporated in a product, the survival/recovery rate of the harvested microbes is increased as compared with the same microbes grown or cultured in a media without resistant starch, the product being selected from the group consisting of a food, feed, nutraceutical, pharmaceutical, biocontrol, and bioremediation product, wherein the resistant starch is derived from starch selected from the group consisting of rice, barley, wheat, legumes, bananas, and combinations thereof.

80. (Previously Presented) The microbial preparation according to claim 79 further comprising resistant starch.

81. (Previously Presented) A microbial preparation comprising harvested microbes which have been grown or cultured in a media based on or containing resistant starch in a manner such that when subsequently incorporated in a product, the survival/recovery rate of the harvested microbes is increased as compared with the same microbes grown or cultured in a media without resistant starch, the product being selected from the group consisting of a food, feed, nutraceutical, pharmaceutical, biocontrol, and bioremediation product, wherein the resistant starch is derived from a starch having an amylose content of at least 40% (w/w).

82. (Previously Presented) The microbial preparation according to claim 81 further comprising resistant starch.

83. (Previously Presented) The microbial preparation according to claim 82 wherein the resistant starch is derived from starch selected from the group consisting of maize, rice, barley, wheat, legumes, potatoes, and bananas, and combinations thereof.

84. (Previously Presented) The microbial preparation according to claim 83 wherein the resistant starch is derived from maize starch.

85. (Previously Presented) The microbial preparation according to claim 84 wherein the maize starch having an amylose content of at least 70% (w/w).

86. (Previously Presented) The microbial preparation according to claim 85 wherein the maize starch having an amylose content of at least 80% (w/w).

87. (Previously Presented) The microbial preparation according to claim 86 wherein the maize starch having an amylose content of at least 90% (w/w).

88. (Previously Presented) A microbial preparation comprising harvested microbes which have been grown or cultured in a media based on or containing resistant starch in a manner such that when subsequently incorporated in a product, the survival/recovery rate of the harvested microbes is increased as compared with the same microbes grown or cultured in a media without resistant starch, the product being selected from the group consisting of a food, feed, nutraceutical, pharmaceutical, biocontrol, and bioremediation product, wherein the starch is chemically, physically, and/or enzymically treated or modified.

89. (Previously Presented) The microbial preparation according to claim 88 further comprising resistant starch.

90. (Previously Presented) The microbial preparation according to claim 88 wherein the resistant starch is derived from starch selected from the group consisting of maize, rice, barley, wheat, legumes, potatoes, and bananas, and combinations thereof.

91. (Previously Presented) The microbial preparation according to claim 88 wherein the chemical modification is selected from the group consisting of oxidation, cross-bonding, etherification, esterification, acidification, dextrinisation, and mixtures thereof.

92. (Previously Presented) The microbial preparation according to claim 88 wherein the physical treatment is heat-moisture treatment to enhance or increase the resistant starch content of the starch.

93. (Previously Presented) The microbial preparation according to claim 88 wherein the treatment is by solvent extraction to remove fats and/or minerals from the starch.

94. (Previously Presented) The microbial preparation according to claim 77 wherein when incorporated in a product, in use the microbes are substantially resistant to stresses including selected from the group consisting of aeration, sheer, freeze drying, freezing, drying including high, medium and low water activity, elevated temperatures, low

temperatures, pressure and pressure fluctuations, low pH, high pH, bile acids, moisture, high osmolarity, low osmolarity, high salt, or and combinations thereof.

95. (Previously Presented) The microbial preparation according to claim 77 wherein the microbes are being a probiotic, a starter culture, or a biocontrol or bioremediation product.

96. (Previously Presented) The microbial preparation according to claim 95 wherein the microbes are probiotic microorganisms from the genera selected from the group of consisting of Saccharomyces, Bifidobacterium, Bacteroides, Clostridium, Fusobacterium, Propionibacterium, Streptococcus, Enterococcus, Lactococcus, Staphylococcus, Peptostreptococcus, Lactobacillus, and combinations thereof.

97. (Previously Presented) The microbial preparation according to claim 95 wherein the microbes are starter cultures selected from the group consisting of yeasts, lactic acid bacteria, and combinations thereof.

98. (Previously Presented) The microbial preparation according to claim 97 wherein the lactic acid bacteria are selected from the group consisting of Lactobacillus, Lactococcus, Streptococcus, Leuconostoc, and combinations thereof.

99. (Previously Presented) The microbial preparation according to claim 95 wherein the microbes are suitable for use in biocontrol or bioremediation being selected from the group consisting of Bifidobacterium, Lactobacillus, fungi, Bacillus, Pseudomonas Alcaligenes, and combinations thereof.

100. (Previously Presented) A product comprising a microbial preparation according to claim 77.

101. (Previously Presented) The product according to claim 100 selected from the group consisting of fluid-based food products, water-based fluids, cereal and plant-based

food products, solid-based food products, tablets, food additives, health supplements, pharmaceutical preparations, and combinations thereof.

102. (Previously Presented) The product according to claim 101 wherein the fluid-based food products comprise milk-based products where the edible ingredient is one or more milk-based ingredients comprising whole milk, milk solids, milk fat, cream, non-fat dried milk, any other component or derivative from milk suitable for use in milk-based products.

103. (Previously Presented) The product according to claim 101 wherein the solid-based food products are selected from the group consisting of snack bars, breakfast cereals, bread, confectionary, extruded food products, muesli bars, buns, biscuits, feed pellets, coated food products, and combinations thereof.

104. (Previously Presented) The product according to claim 100 being a food product suitable to contain and deliver probiotic microorganisms.

105. (Previously Presented) The food product according to claim 104 selected from the group consisting of food stuffs, fruit beverages, water ices, confectionary, coatings or covertures, yoghurts, yoghurt drinks, unfermented drinks, flavoured milk drinks, modified milk drinks, ice-creams, dairy desserts, and combinations thereof.

106. (Previously Presented) The product according to claim 102 further comprising resistant starch.

107. (Previously Presented) The product according to claim 106 wherein the resistant starch is added at a concentration of 0.1 to 90% (w/w) total product.

108. (Previously Presented) The product according to claim 107 wherein the resistant starch is added at a concentration of about 10% (w/w) total product.

109. (Previously Presented) The microbial preparation according to claim 79 wherein when incorporated in a product, in use the microbes are substantially resistant to

stresses including selected from the group consisting of aeration, sheer, freeze drying, freezing, drying including high, medium and low water activity, elevated temperatures, low temperatures, pressure and pressure fluctuations, low pH, high pH, bile acids, moisture, high osmolarity, low osmolarity, high salt, or and combinations thereof.

110. (Previously Presented) The microbial preparation according to claim 79 wherein the microbes are being a probiotic, a starter culture, or a biocontrol or bioremediation product.

111. (Previously Presented) The microbial preparation according to claim 110 wherein the microbes are probiotic microorganisms from the genera selected from the group of consisting of Saccharomyces, Bifidobacterium, Bacteroides, Clostridium, Fusobacterium, Propionibacterium, Streptococcus, Enterococcus, Lactococcus, Staphylococcus, Peptostreptococcus, Lactobacillus, and combinations thereof.

112. (Previously Presented) The microbial preparation according to claim 110 wherein the microbes are starter cultures selected from the group consisting of yeasts, lactic acid bacteria, and combinations thereof.

113. (Previously Presented) The microbial preparation according to claim 112 wherein the lactic acid bacteria are selected from the group consisting of Lactobacillus, Lactococcus, Streptococcus, Leuconostoc, and combinations thereof.

114. (Previously Presented) The microbial preparation according to claim 110 wherein the microbes are suitable for use in biocontrol or bioremediation being selected from the group consisting of Bifidobacterium, Lactobacillus, fungi, Bacillus, Pseudomonas Alcaligenes, and combinations thereof.

115. (Previously Presented) A product comprising a microbial preparation according to claim 79.

116. (Previously Presented) The product according to claim 115 selected from the group consisting of fluid-based food products, water-based fluids, cereal and plant-based food products, solid-based food products, tablets, food additives, health supplements, pharmaceutical preparations and combinations thereof.

117. (Previously Presented) The product according to claim 116 wherein the fluid-based food products comprise milk-based products where the edible ingredient is one or more milk-based ingredients comprising whole milk, milk solids, milk fat, cream, non-fat dried milk, any other component or derivative from milk suitable for use in milk-based products.

118. (Previously Presented) The product according to claim 116 wherein the solid-based food products are selected from the group consisting of snack bars, breakfast cereals, bread, confectionary, extruded food products, muesli bars, buns, biscuits, feed pellets, coated food products, and combinations thereof.

119. (Previously Presented) The product according to claim 115 being a food product suitable to contain and deliver probiotic microorganisms.

120. (Previously Presented) The food product according to claim 119 selected from the group consisting of food stuffs, fruit beverages, water ices, confectionary, coatings or coverings, yoghurts, yoghurt drinks, unfermented drinks, flavoured milk drinks, modified milk drinks, ice-creams, dairy desserts, and combinations thereof.

121. (Previously Presented) The product according to claim 115 further comprising resistant starch.

122. (Previously Presented) The product according to claim 121 wherein the resistant starch is added at a concentration of 0.1 to 90% (w/w) total product.

123. (Previously Presented) The product according to claim 122 wherein the resistant starch is added at a concentration of about 10% (w/w) total product.

124. (Previously Presented) The microbial preparation according to claim 81 wherein when incorporated in a product, in use the microbes are substantially resistant to stresses including selected from the group consisting of aeration, sheer, freeze drying, freezing, drying including high, medium and low water activity, elevated temperatures, low temperatures, pressure and pressure fluctuations, low pH, high pH, bile acids, moisture, high osmolarity, low osmolarity, high salt, or and combinations thereof.

125. (Previously Presented) The microbial preparation according to claim 81 wherein the microbes are being a probiotic, a starter culture, or a biocontrol or bioremediation product.

126. (Previously Presented) The microbial preparation according to claim 125 wherein the microbes are probiotic microorganisms from the genera selected from the group of consisting of Saccharomyces, Bifidobacterium, Bacteroides, Clostridium, Fusobacterium, Propionibacterium, Streptococcus, Enterococcus, Lactococcus, Staphylococcus, Peptostreptococcus, Lactobacillus, and combinations thereof.

127. (Previously Presented) The microbial preparation according to claim 125 wherein the microbes are starter cultures selected from the group consisting of yeasts, lactic acid bacteria, and combinations thereof.

128. (Previously Presented) The microbial preparation according to claim 126 wherein the lactic acid bacteria are selected from the group consisting of Lactobacillus, Lactococcus, Streptococcus, Leuconostoc, and combinations thereof.

129. (Previously Presented) The microbial preparation according to claim 125 wherein the microbes are suitable for use in biocontrol or bioremediation being selected from the group consisting of Bifidobacterium, Lactobacillus, fungi, Bacillus, Pseudomonas Alcaligenes, and combinations thereof.

130. (Previously Presented) A product comprising a microbial preparation according to claim 81.

131. (Previously Presented) The product according to claim 130 selected from the group consisting of fluid-based food products, water-based fluids, cereal and plant-based food products, solid-based food products, tablets, food additives, health supplements, pharmaceutical preparations, and combinations thereof.

132. (Previously Presented) The product according to claim 131 wherein the fluid-based food products comprise milk-based products where the edible ingredient is one or more milk-based ingredients comprising whole milk, milk solids, milk fat, cream, non-fat dried milk, any other component or derivative from milk suitable for use in milk-based products.

133. (Previously Presented) The product according to claim 131 wherein the solid-based food products are selected from the group consisting of snack bars, breakfast cereals, bread, confectionary, extruded food products, muesli bars, buns, biscuits, feed pellets, coated food products, and combinations thereof.

134. (Previously Presented) The product according to claim 130 being a food product suitable to contain and deliver probiotic microorganisms.

135. (Previously Presented) The food product according to claim 134 selected from the group consisting of food stuffs, fruit beverages, water ices, confectionary, coatings or coverings, yoghurts, yoghurt drinks, unfermented drinks, flavoured milk drinks, modified milk drinks, ice-creams, dairy desserts, and combinations thereof.

136. (Previously Presented) The product according to claim 130 further comprising resistant starch.

137. (Previously Presented) The product according to claim 136 wherein the resistant starch is added at a concentration of 0.1 to 90% (w/w) total product.

138. (Previously Presented) The product according to claim 137 wherein the resistant starch is added at a concentration of about 10% (w/w) total product.

139. (Previously Presented) The microbial preparation according to claim 88 wherein when incorporated in a product, in use the microbes are substantially resistant to stresses including selected from the group consisting of aeration, sheer, freeze drying, freezing, drying including high, medium and low water activity, elevated temperatures, low temperatures, pressure and pressure fluctuations, low pH, high pH, bile acids, moisture, high osmolarity, low osmolarity, high salt, or and combinations thereof.

140. (Previously Presented) The microbial preparation according to claim 88 wherein the microbes are being a probiotic, a starter culture, or a biocontrol or bioremediation product.

141. (Previously Presented) The microbial preparation according to claim 140 wherein the microbes are probiotic microorganisms from the genera selected from the group of consisting of Saccharomyces, Bifidobacterium, Bacteroides, Clostridium, Fusobacterium, Propionibacterium, Streptococcus, Enterococcus, Lactococcus, Staphylococcus, Peptostreptococcus, Lactobacillus, and combinations thereof.

142. (Previously Presented) The microbial preparation according to claim 140 wherein the microbes are starter cultures selected from the group consisting of yeasts, lactic acid bacteria, and combinations thereof.

143. (Previously Presented) The microbial preparation according to claim 142 wherein the lactic acid bacteria are selected from the group consisting of Lactobacillus, Lactococcus, Streptococcus, Leuconostoc, and combinations thereof.

144. (Previously Presented) The microbial preparation according to claim 140 wherein the microbes are suitable for use in biocontrol or bioremediation being selected from the group consisting of Bifidobacterium, Lactobacillus, fungi, Bacillus, Pseudomonas Alcaligenes, and combinations thereof.

145. (Previously Presented) A product comprising a microbial preparation according to claim 88.

146. (Previously Presented) The product according to claim 145 selected from the group consisting of fluid-based food products, water-based fluids, cereal and plant-based food products, solid-based food products, tablets, food additives, health supplements, pharmaceutical preparations, and combinations thereof.

147. (Previously Presented) The product according to claim 146 wherein the fluid-based food products comprise milk-based products where the edible ingredient is one or more milk-based ingredients comprising whole milk, milk solids, milk fat, cream, non-fat dried milk, any other component or derivative from milk suitable for use in milk-based products.

148. (Previously Presented) The product according to claim 146 wherein the solid-based food products are selected from the group consisting of snack bars, breakfast cereals, bread, confectionary, extruded food products, muesli bars, buns, biscuits, feed pellets, coated food products, and combinations thereof.

149. (Previously Presented) The product according to claim 145 being a food product suitable to contain and deliver probiotic microorganisms.

150. (Previously Presented) The food product according to claim 149 selected from the group consisting of food stuffs, fruit beverages, water ices, confectionary, coatings or coverings, yoghurts, yoghurt drinks, unfermented drinks, flavoured milk drinks, modified milk drinks, ice-creams, dairy desserts, and combinations thereof.

151. (Previously Presented) The product according to claim 145 further comprising resistant starch.

152. (Previously Presented) The product according to claim 151 wherein the resistant starch is added at a concentration of 0.1 to 90% (w/w) total product.

153. (Previously Presented) The product according to claim 152 wherein the resistant starch is added at a concentration of about 10% (w/w) total product.